



Ba/Bs/EVS/M-3T

2024

(FYUGP)

(3rd Semester)

ENVIRONMENTAL SCIENCE

(Minor)

Paper Code : EVS/M-3T

(Ecology and Ecosystem)

Full Marks : 75

Pass Marks : 40%

Time : 3 hours

(PART : B—DESCRIPTIVE)

(Marks : 50)

*The figures in the margin indicate full marks
for the questions*

1. Describe the major terrestrial biomes on earth.

10

Or

What is ecological niche? Explain the different types of niche.

2+8=10

2. Define population and metapopulation. Describe the different types of dispersion and age structures in population study. 3+7=10

Or

What is deterministic and stochastic model of population dynamic? Elaborate on the ruderal, competitive and stress tolerance strategies. 4+6=10

3. Describe the community structure and organization. 10

Or

Explain, in detail, the various species interactions found in the environment. 10

4. What is ecosystem? Describe the different types of ecosystem. 2+8=10

Or

Define ecological efficiencies. Write a note on primary production and models of energy flow. 2+8=10

5. What is the role of mycorrhizae in nutrient uptake in plants? Explain nutrient budget and nutrient conservation strategies. 3+7=10

Or

Define invasive ecogenomics. Describe the impacts of invasion on ecosystem and communities. 3+7=10

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ENVIRONMENTAL SCIENCE

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Paper Code : EVS/M-3T

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(PART : A—OBJECTIVE)

(Marks : 25)

The figures in the margin indicate full marks for the questions

SECTION—I

(Marks : 15)

A. Put a Tick (✓) mark against the correct answer in the brackets provided : 1×15=15

1. Who defined ecology as the 'study of interrelationships between organisms and environment'?

(a) Ernst Haeckel ()

(b) E. P. Odum ()

(c) Darwin ()

(d) Arthur Tansley ()

2. A biographic realm is also called as

(a) ecotype ()

(b) ecocline ()

(c) ecotone ()

(d) ecozone ()

3. Which part of a plant exhibits thermoregulation?

(a) Leaf ()

(b) Stem ()

(c) Flower ()

(d) Root ()

4. In a survivorship curve, which species will show a highly concave curve due to high mortality rate at young age?

(a) Shellfish ()

(b) Sheep ()

(c) Mouse ()

(d) Butterfly ()

5. In theory of population growth, which type of growth has a limit that cannot be exceeded?

(a) Geometric ()

(b) Exponential ()

(c) Logistic ()

(d) All of the above ()

6. Who proposed the 'competitive, stress and ruderal theory'?

(a) Grime ()

(b) Leibig ()

(c) Shelford ()

(d) Elton ()

7. Physiognomy refers to

(a) study of seasonal change in organisms ()

(b) the arrangement of plants in different vertical layers ()

(c) the physical structure of a species ()

(d) the general appearance of vegetation ()

8. The process of successful establishment of species in a new place is called

(a) Nudation ()

(b) Ecesis ()

(c) Aggregation ()

(d) Climax ()

9. Example of commensalism between species is

- (a) liana's interaction with trees ()
- (b) Rhizobium's interaction with leguminous plant ()
- (c) sea anemone's interaction with hermit crab ()
- (d) bee's interaction with flowers ()

10. 'A partially enclosed coastal body of brackish water, with rivers flowing into it and with connection to the open sea' is an example of

- (a) lentic ecosystem ()
- (b) lotic ecosystem ()
- (c) estuarine ecosystem ()
- (d) marine ecosystem ()

11. The total energy processed by all the individual organisms that make up an ecosystem is called

(a) Ecosystem boundary ()

(b) Ecosystem metabolism ()

(c) Ecosystem connection ()

(d) Ecological efficiency ()

12. Which biogeochemical cycle includes symbiotic bacteria fixing the gaseous element in the soil?

(a) Carbon cycle ()

(b) Phosphorus cycle ()

(c) Sulphur cycle ()

(d) Nitrogen cycle ()

13. Which chemical shows biological accumulation?

- (a) Mercury ()
- (b) PCB's ()
- (c) Dioxine ()
- (d) All of the above ()

14. Which ecological pyramid is also called as pyramid of productivity?

- (a) Pyramid of number ()
- (b) Pyramid of biomass ()
- (c) Pyramid of energy ()
- (d) None of the above ()

15. Which is the correct order of stages of invasion of species?

(a) Transport, introduction, establishment, spread ()

(b) Spread, introduction, transport, establishment ()

(c) Introduction, transport, spread, establishment ()

(d) Establishment, transport, introduction, spread ()

SECTION—II

(Marks : 10)

B. Write notes on any *five* of the following : 2×5=10

1. Ecozones

2. Autecology and synecology

3. r and k selection

Biological potential

4. Biotic potential

5. Keystone species

6. Ecosystem pyramid

7. Biological invasion

8. Climax community
